

# **FIRE EVOLUTION IN THE RADIOACTIVE FORESTS OF UKRAINE AND BELARUS: FUTURE RISKS FOR THE POPULATION AND THE ENVIRONMENT**

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## APPENDIX A

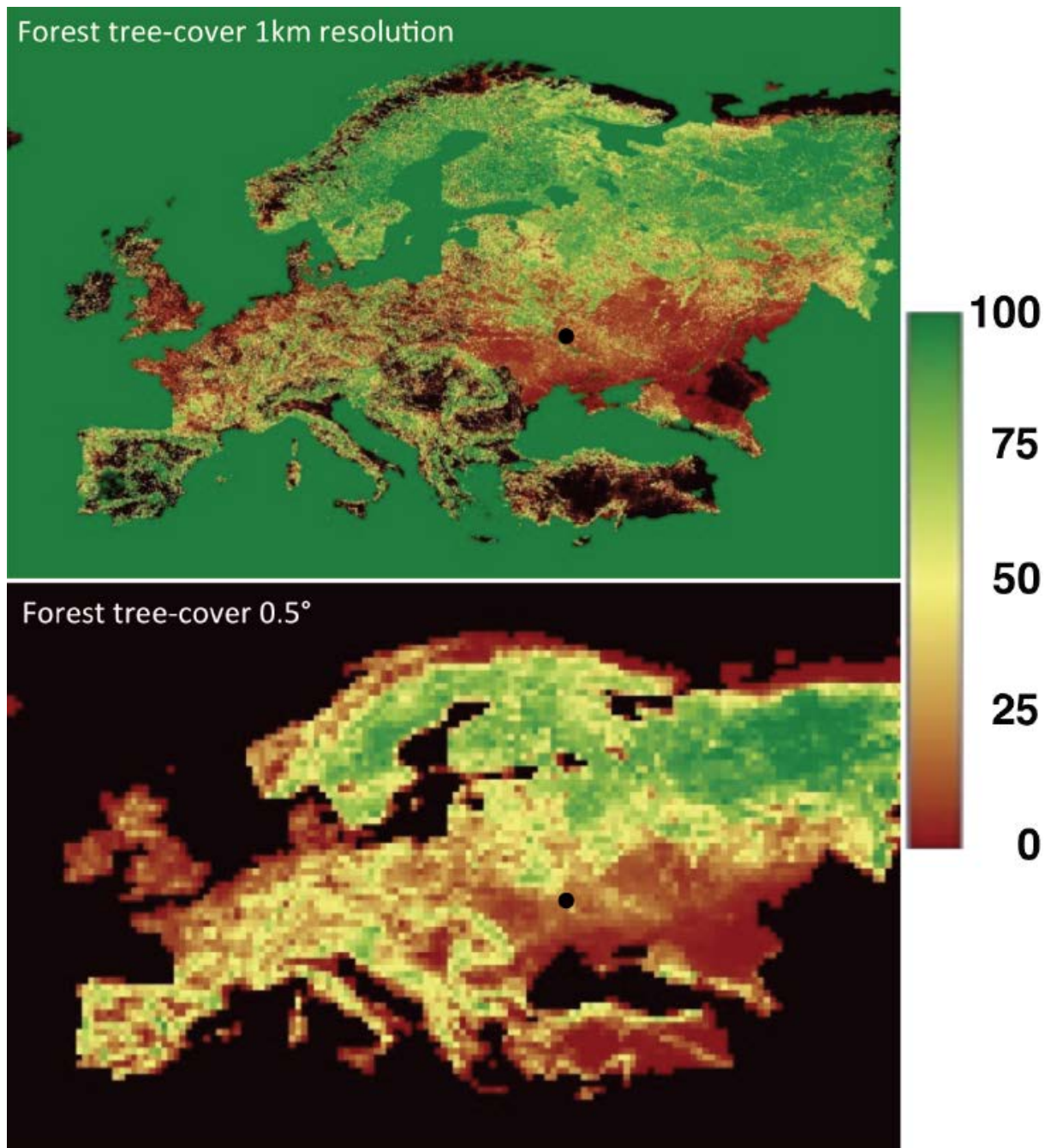


Fig. A 1. Forest tree-cover from Kempeneers et al. (2011) database at 1 km resolution (upper panel) and aggregated at 0.5° resolution (lower panel) for comparison with the GFED database. The black dot indicates the ChNPP.

## Boundary Layer Height in Chernobyl and Belarus

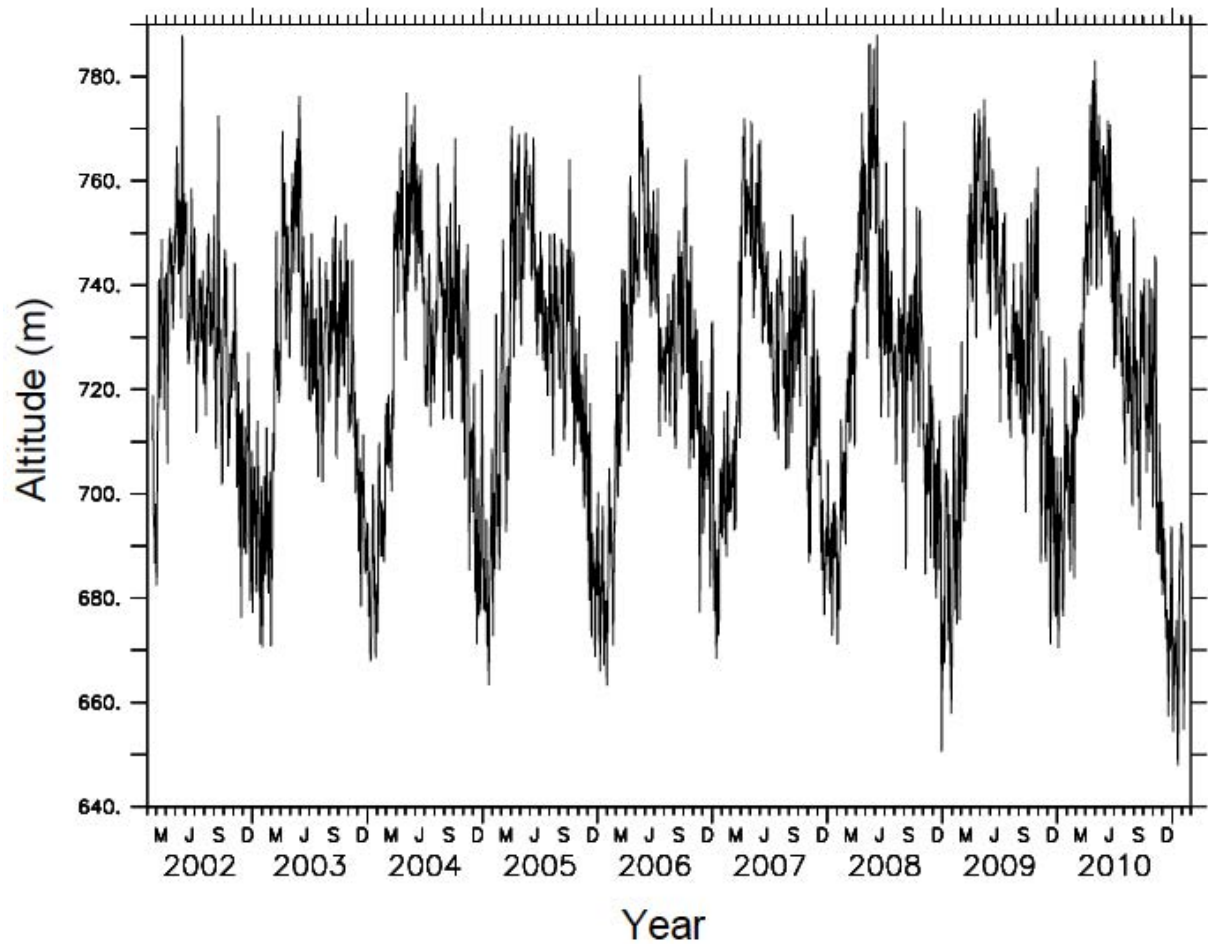


Fig. A 2. Variation of the Boundary Layer Height (m) in the Ukrainian and Belarusian contaminated forests between 2002 and 2010 where large fires occurred. The values are averages for longitudes between 20°E–40°E and latitudes between 40°N–60°N (ECMWF, 2002).

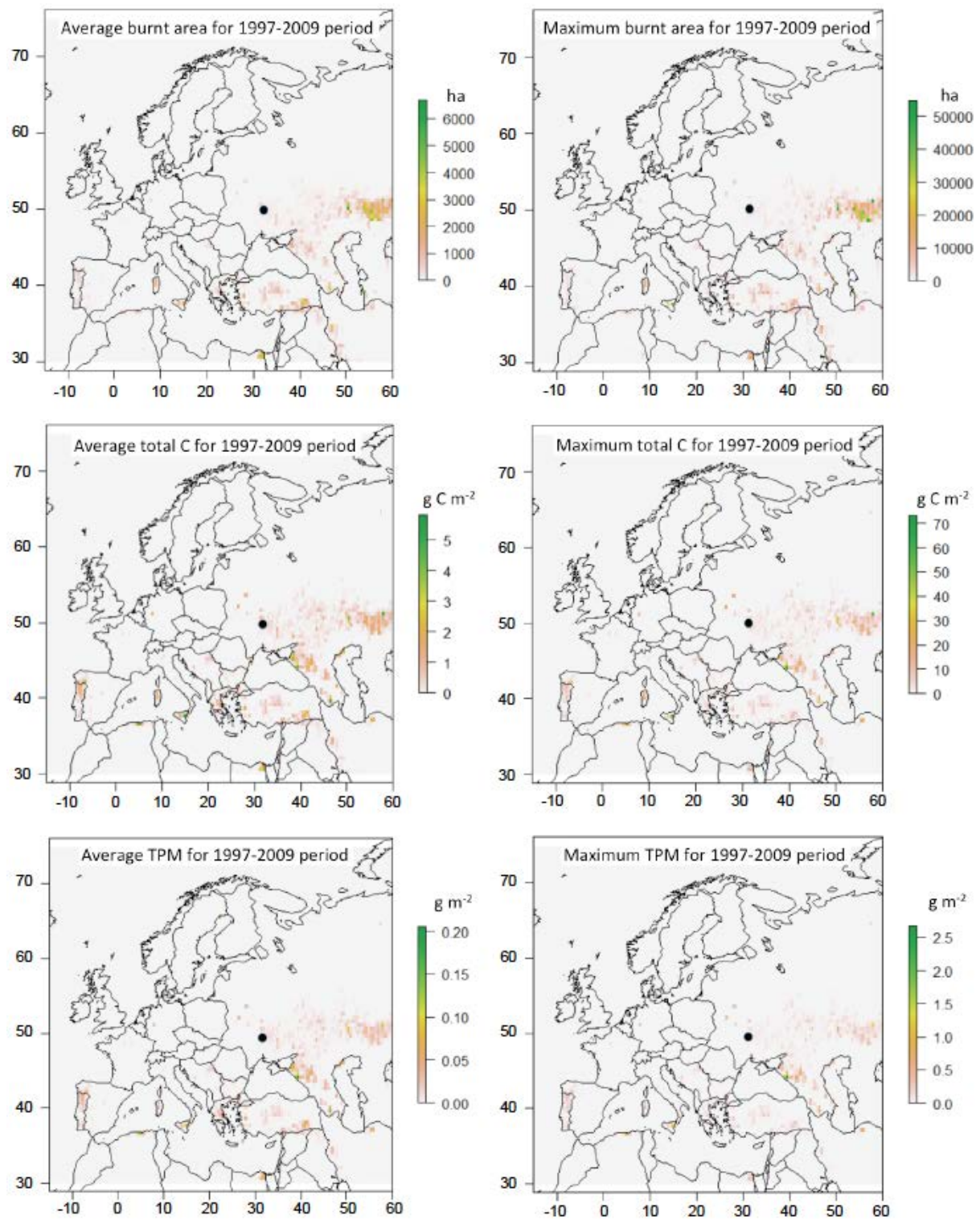


Fig. A 3. Continental distribution of BA, TC, and TPM for Europe from the GFEDv3.1 database.



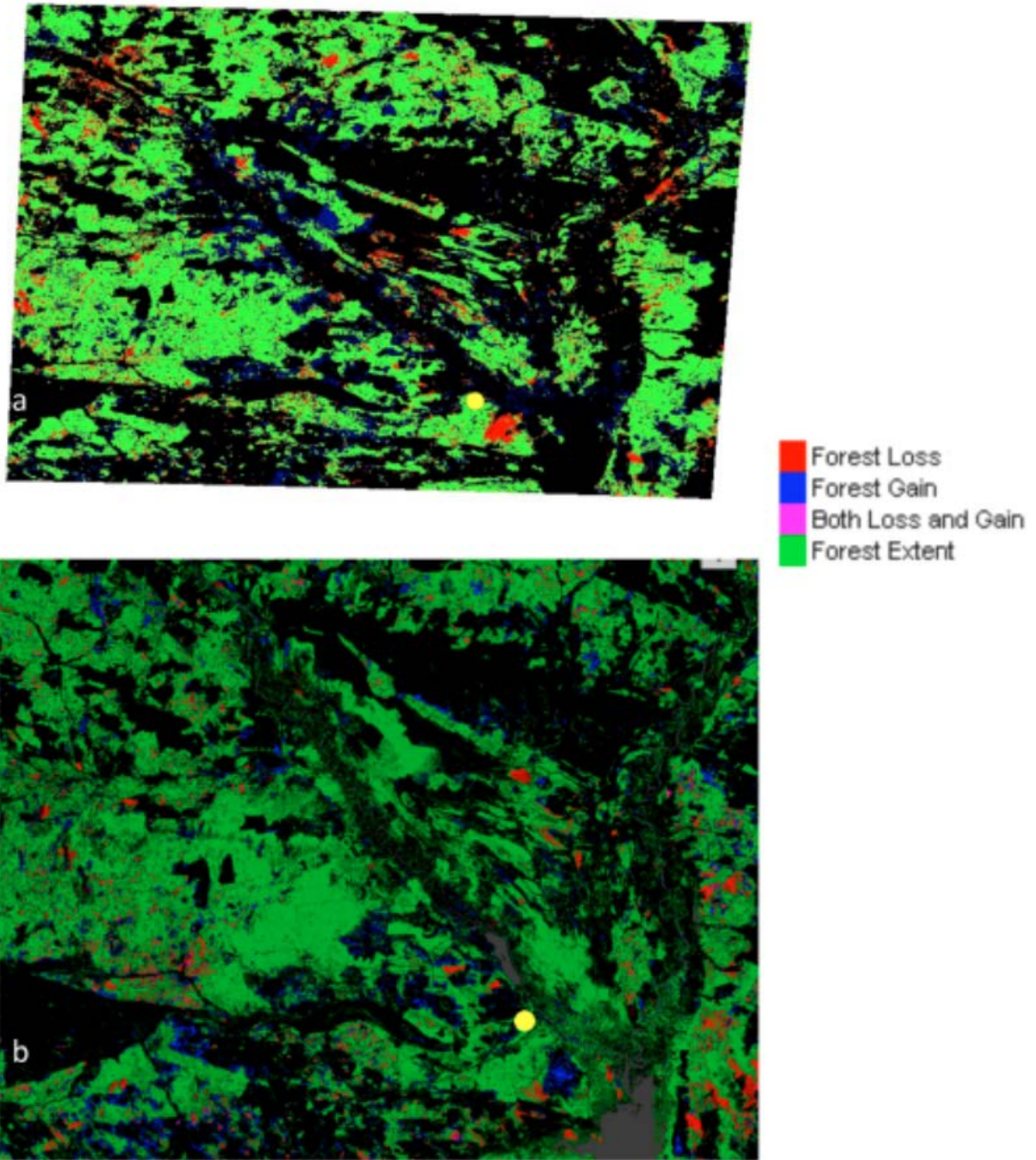
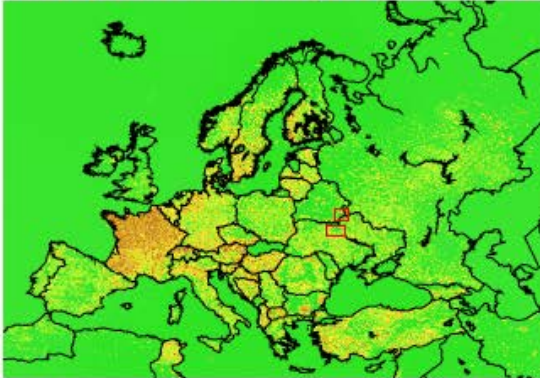


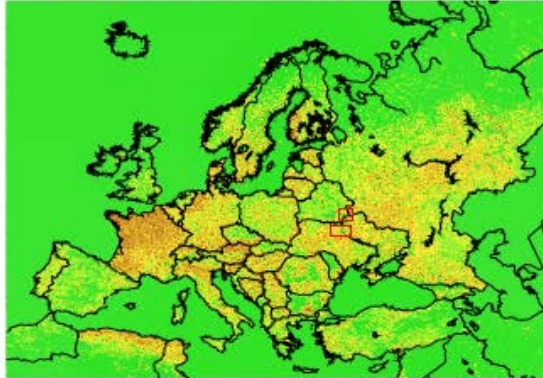
Fig. A 4. (a) Forest cover change around the ChNPP derived from Landsat images from 1987 and 2010. (b) Forest-cover change over the ChNPP from Hansen et al. (2013).

## BIOMASS BURNING IN EUROPE (0.1°x 0.1°)

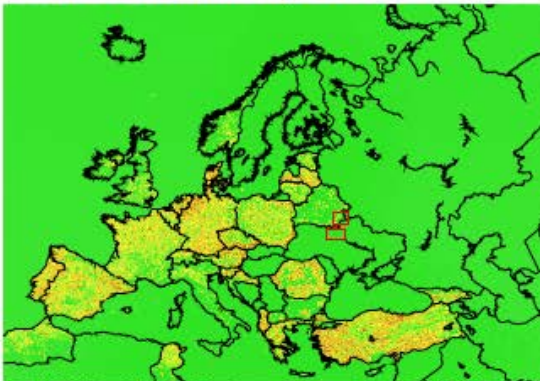
Firewood consumption in 1986



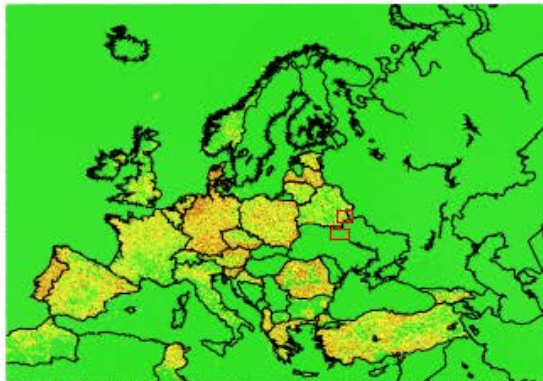
Firewood consumption in 2007



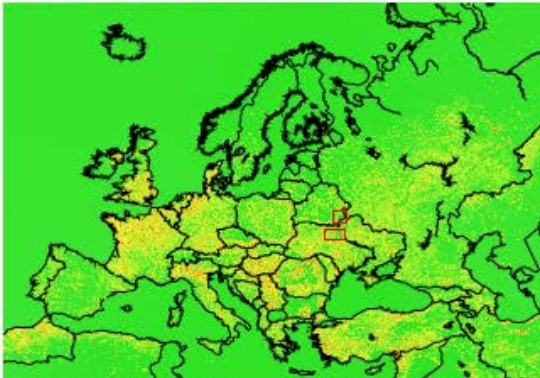
Straw consumption in 1986



Straw consumption in 2007



Agricultural burning in 1986



Agricultural burning in 2007

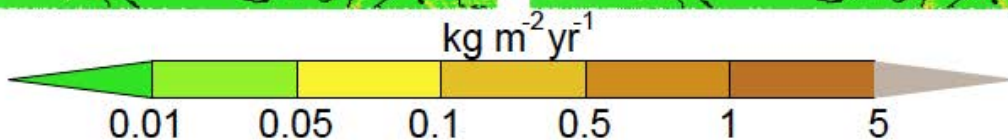
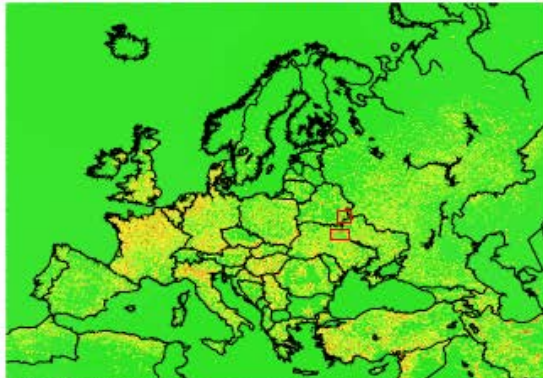


Fig. A 5. Biomass burning in Chernobyl as seen from PKU-FUEL model of the Peking University. Years 1986 and 2007 are shown, in order to certify the temporal variation in the consumption of firewood, straw, as well as fires of agricultural origin. Red rectangles denote the contaminated forests of Ukraine and Belarus.



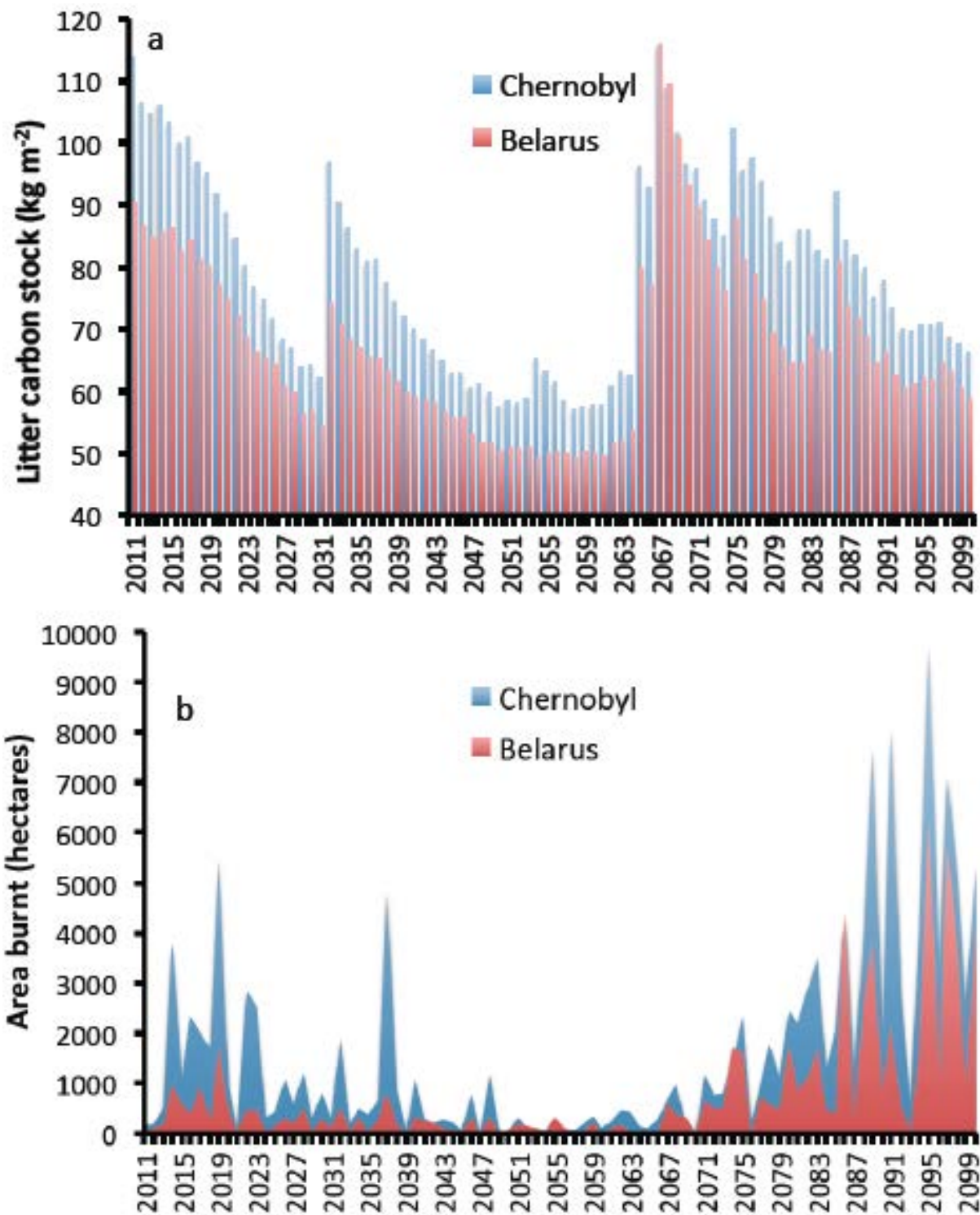


Fig. A 6. Prediction of the litter carbon stock (g C m<sup>-2</sup>) and fire occurrence (area burned (ha)) until 2100 calculated from the LPJmL-SPITFIRE model for Europe, Belarus and Chernobyl (average values over the defined regions of interest).

## LITERATURE CITED

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- Hansen, M. C., P. V. Potapov, R. Moore, M. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stehman, S. J. Goetz, T. R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C. O. Justice, and J. R. G. Twonshend. 2013. High resolution global maps of 21<sup>st</sup> century forest cover change. *Science* 342:850–853.
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